

**Patent claims**

1. A hydraulic support element (1) for a valve train of an internal combustion engine, having a hollow cylindrical housing (2), in the bore (3) of which a pressure piston (4) runs in an axially moveable manner, one end (5) of said piston projecting beyond an edge (6) of the housing (2) and said piston having on that end (5) face a head (7) for mounting a rocker arm and having a non-return valve (9) on its end (8) facing away from the head (7), a high pressure space (11) for hydraulic medium being generated between the end (8) facing away and an opposing base (10) of the housing (2), said high pressure space (11) capable of being supplied with the hydraulic medium from a storage space (12) situated above the end (8) facing away and enclosed by the pressure piston (4),  
characterized in that the pressure piston (4) consists, at its end (5) which projects beyond the edge (6) of the housing (2) and in at least a portion (13) which adjoins this end within the housing (2) and extends into the vicinity of the non-return valve (9), of synthetic material reinforced with glass fibers or carbon fibers.
2. The support element as claimed in claim 1,  
**characterized** in that glass beads or carbon beads are embedded in the synthetic material of the pressure piston (4) as reinforcement.
3. The support element as claimed in claim 1 or 2,  
**characterized** in that the pressure piston (4) is

manufactured in two parts, comprising firstly an upper part (4a) made from the synthetic material, said upper part (4a) being composed of the end (5) and the portion (13) which ends in the vicinity of  
5 the non-return valve (9), and the pressure piston (4) secondly comprising a lower part (4b), made from metallic material, with the non-return valve (9).

10 4. The support element as claimed in claim 1,  
**characterized** in that catch projections (15) are arranged on an outer casing (14) of the portion (13) of the pressure piston (4), which catch projections are distributed around the circumference and are preferably in one piece with  
15 and project from said outer casing and meet an upper stop in an annular groove (16) in the bore (3) of the housing (2).

20 5. The support element as claimed in claim 1 or 4,  
**characterized** in that an outer casing (14) of the portion (13) of the pressure piston (4) or, if referring back to claim 4, an outer casing (14) of the portion (13) of the pressure piston (4) apart  
25 from the catch projections (15), is of entirely or at least of largely smooth-surfaced design.

6. The support element as claimed in claim 3,  
**characterized** in that the upper part (4a) of the pressure piston (4) rests on a facing end side (17) of the lower part (4b) by means of a ring (18), studs (19), which are distributed about the circumference, are elastically or plastically  
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deformable and rest on the end side (17), projecting from the ring (18).

7. The support element as claimed in claim 3,  
5      **characterized** in that the upper part (4a) of the pressure piston (4) rests on a facing end side (17) of the lower part (4b) by means of a ring (18), crown-like radial recesses, which adjoin the respectively opposite components end side (17) /  
10      ring (18), running in the ring (18) or in the end side (17).
8. The support element as claimed in claim 6 or 7,  
15      **characterized** in that an aperture (20) to let hydraulic medium into the storage space (12) is formed between the studs (19) (claim 6) or the radial recesses (claim 7).
9. The support element as claimed in claim 3,  
20      **characterized** in that the upper part (4a) of the pressure piston (4) rests on a facing end side (17) of the lower part (4b) by means of a ring (18) formed by a reduced-diameter region of the outer casing (14) of said upper part, studs (19),  
25      which are distributed about the circumference and are elastically or plastically deformable, projecting from the ring (18) and the reduced-diameter region being fixedly installed in a bore (21) of the lower part (4b) as an extension (22).  
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10. The support element as claimed in claim 9,  
      **characterized** in that one or more longitudinal slots (24) project from a lower end side (23) of the extension (22) of the lower part (4b), it

being possible to conduct the hydraulic medium by means of the longitudinal slots (24) into the storage space (12) through an aperture (20) situated between the upper and lower parts (4a, 5 4b) of the pressure piston (4) and formed by studs (19) or crown-like recesses.

11. The support element as claimed in claim 9,  
10 **characterized** in that an edge region between the outer casing (14) and a lower end side (23) of the extension (22) is provided with connection studs (26) for abutment in the bore (21).
12. The support element as claimed in claim 1,  
15 **characterized** in that the pressure piston (4) is produced by injection molding.
13. The support element as claimed in claim 1,  
20 **characterized** in that the support element (1) is of non-switchable design.
14. The support element as claimed in claim 1,  
25 **characterized** in that the support element (1) is of switchable design in order to achieve different valve strokes.